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(NASA-CR-150193) QUALITY ASSURANCE PLAN FOR  
SOLAR MAXIMUM MISSION (SSM) INSTRUMENTS  
ELECTRONIC ASSEMBLY - HRUV  
SPECTROMETER/POLARIMETER (SCI Systems, Inc.,  
Huntsville, Ala.) 44 p HC A03/MF A01

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QUALITY ASSURANCE PLAN  
FOR  
SOLAR MAXIMUM MISSION  
(SMM) INSTRUMENTS  
ELECTRONIC ASSEMBLY -  
HRUV SPECTROMETER/POLARIMETER

PREPARED FOR THE  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
MARSHALL SPACE FLIGHT CENTER  
HUNTSVILLE, ALABAMA 35812


REVISED  
DECEMBER 1976

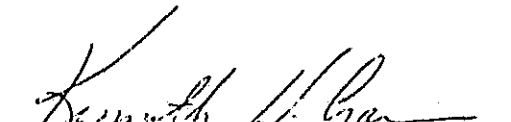
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This document has been prepared in accordance with the requirements of  
NHB5300.4 (1C) for the Solar Maximum Mission (SMM) Instrument Package  
in accordance to GSFC document #SMM-300-01 Rev. A for Contract NAS 8-32035.

APPROVED BY:

  
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Manager, Quality Assurance

JULY 15, 1976

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INTRODUCTION

This plan documents the SCI Systems, Inc., Huntsville Division Quality Assurance Program for the Solar Maximum Mission (SMM) Instruments. The SCI Quality Assurance Program is based on the requirements outlined in NHB5300.4 (1C) and complies with the requirements of GFSC Document #SMM-300-01. All inspections defined in this plan will be performed in accordance with SCI quality procedures and instructions, process specifications, drawings, and acceptance test procedures prepared by SCI to fulfill contractual requirements.

This plan reflects the specifics necessary to fulfill the quality assurance requirements of the SMM Instruments hardware fabrication. The program will:

- (a) Demonstrate recognition of the quality aspects of the contract and an organized approach to achieve them.
- (b) Ensure that quality requirements are determined and satisfied throughout all phases of contract performance, including preliminary and engineering design, development, fabrication, processing, assembly, inspection, test, checkout, packaging, shipping, storage, maintenance field use, flight preparations, flight operations and post-flight analysis, as applicable.
- (c) Ensure that quality aspects are fully included in all designs and are continuously maintained in the fabricated articles and during operations.
- (d) Provide for the detection of actual or potential deficiencies, system incompatibility, marginal quality and trends or conditions which could

result in unsatisfactory quality.

(o) Provide timely and effective remedial and preventive action.

Existing procedures will be updated and new procedures generated, as required, to comply with contract requirements.

Objective evidence of inspections and tests performed by SCI will be readily available to the delegated DCAS representative. Reference Appendix A for a list of documentation and where it is used in the inspection flow.

NOTE: SCI Quality Control Procedures and Instructions referenced herein comply with the requirements of NHB5300.4 (IC). These documents are used for the control of hardware and reliability as referenced in applicable sections or paragraphs of this plan.

## 2.0

### QUALITY ASSURANCE MANAGEMENT

The SCI Quality Assurance Program is administered by the Quality Assurance Manager. The Quality Assurance Manager reports directly to top management, thus assuring that SCI quality requirements are not compromised or influenced by other contract related functional departments. SCI's Quality Assurance Program is based on a total inspection effort of each phase of the program from product design thru delivery. During contract performance, the Quality Assurance Manager will be responsible for assuring adherence to the program plan. This effort will be accomplished by management actions outlined in: Preproduction quality assurance; process quality control; assembly quality control; quality verification and audit.

## 2.1

### ORGANIZATION

SCI's Quality Assurance Department is organized to be independent of influence from other operational departments of the company and reports directly to the Vice President of Government Programs.

The responsibility of the Quality Assurance Department is to establish quality standards and practices; provide quality procedures and instructions; and insure product compliance to contract quality requirements. The assigned responsibility of the department is applied by means of the following functions:

- (a) Support other SCI departments having product related tasks with a quality system that will insure product integrity from the receipt of materials to delivery of the end product.



- (b) Evaluate quality requirements and establish a quality program, inclusive from development through delivery, sufficient to maintain these requirements.
- (c) Participate in the program reviews to provide for adequate quality planning.
- (d) Review product documentation and drawings to insure proper quality requirements are invoked and that proper revision level control is maintained.
- (e) Provide receiving, in-process and acceptance inspection and testing on all manufactured products, and witness testing of SCI-built equipment to be used in the manufacturing process.
- (f) Provide a system for corrective action and disposition of defective materials.
- (g) Create and maintain a system for analyzing the SCI quality program through:
  - Internal Audits
  - Cost of quality data and reporting.

Figure 1 illustrates the SCI quality assurance organizational structure, showing areas of responsibility.

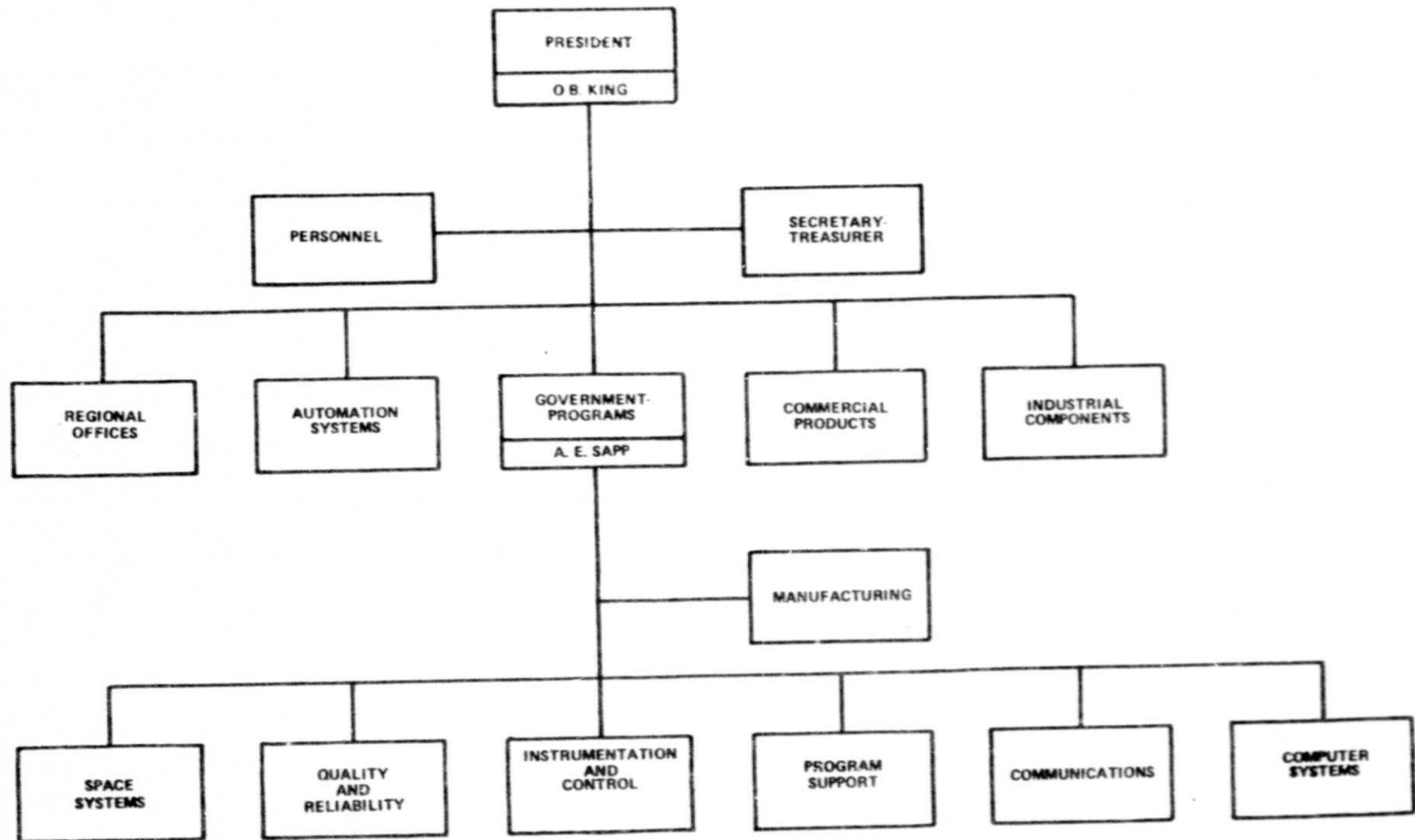


FIGURE 1 (Sheet 1 of 2). ORGANIZATIONAL STRUCTURE

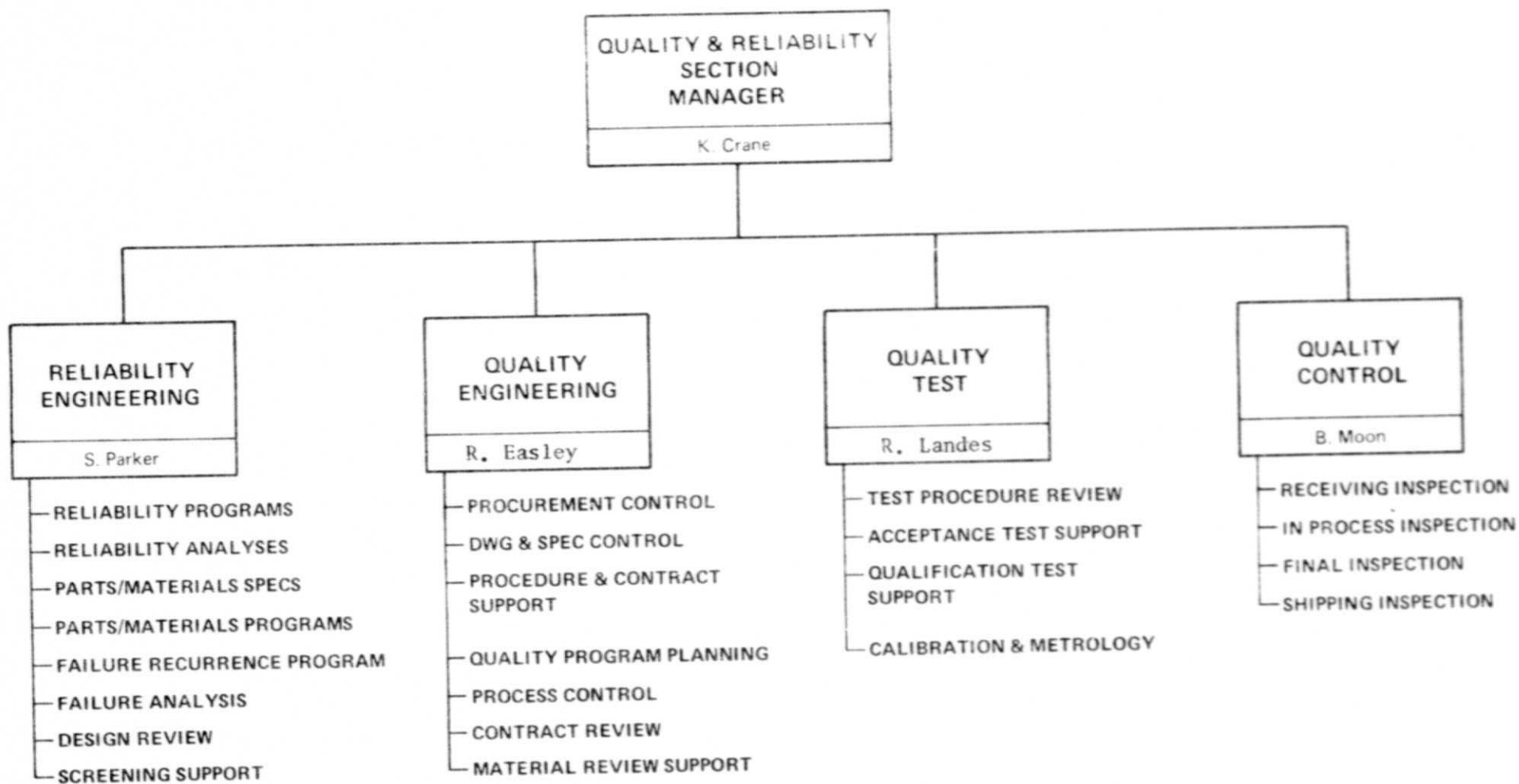


FIGURE 1 (Sheet 2). ORGANIZATIONAL STRUCTURE

## 2.2

### TRAINING

SCI uses trained and proficiency certified personnel to implement this Quality Assurance Program.

- (a) Certification of Personnel. Examples of processes requiring training and certification are soldering, welded circuitry, cleaning and plastics applications (potting, molding, foaming, etc.). Qualification and testing of personnel are described in the SCI Training Program Manual. Certified personnel are issued a certification card and certificate.
- (b) Recertification of Personnel. Recertification is on an annual basis, as a minimum, in accordance with SCI's Training Program Manual or for any one of the following interim conditions:
  - (1) Interruption of work period exceeding thirty days, or as designated in the Training Program Manual.
  - (2) Techniques introduced which require new skills.
  - (3) Reason to doubt proficiency or workmanship.
- (c) Records. Records of the training, testing and certification status of personnel is maintained. Records are audited by quality assurance to indicate the performance of all personnel. Recertification and retraining are required should performance become substandard.

## 2.3

### QUALITY INFORMATION

Records of all activities relating to the product quality is maintained by quality assurance. These include purchase orders, part screening data, vendor performance,

in-process inspection records, shop performance and evaluation, corrective actions, operator training and certification, material review/material review board actions, acceptance test data, monthly manufacturing shop performance evaluations and scrap cost.

#### 2.4 QUALITY ACTIVITY

The following reports and data shall be available for review by MSFC or the delegated DCAS representative.

- (a) Audit findings.
- (b) Policy changes and key personnel changes within quality assurance.
- (c) Quality trend reports.
- (d) Quality cost records.
- (e) Training schedules and accomplishments.
- (f) Monthly manpower expenditures and percent task completion.
- (g) Test and inspection plan (to be included in the manufacturing program plan).
- (h) Major program and hardware problems, their solutions, and remedial and preventive actions.
- (i) Performance relative to nonconformances, inspection and test activity, and material review activity including charts, tables and narrative analyses in order of hardware manufacture.
- (j) Procurement activities relative to supplier selections, performance and significant supplier-related quality problems.

### 3.0

### DESIGN AND DEVELOPMENT CONTROLS

#### 3.1

#### TECHNICAL DOCUMENTS

SCI will establish, document and ensure compliance with design control requirements and quality criteria during all phases of contract work. SCI technical documents such as specifications, procedures, drawings, fabrication and planning documents and process sheets will be developed and will include, as applicable, the following information:

- (a) Characteristics and design criteria necessary for procurement, fabrication (including assembly) and inspection and test operations.
- (b) Characteristic tolerances.

SCI quality assurance personnel conduct document reviews of drawings and specifications prior to release for production. The purpose of this review is to assure compliance with all quality provisions of the contract and that internal SCI quality policies are not compromised. Drawing and specification review will be in accordance with Quality Control Procedure (QCP) 4.01 Drawing, Specification and Test Procedure Control.

The identity of the drawing and specification releases for each production order is indicated in the appropriate drawing number and revision letter blocks on the work order, route sheets and other associated documents. Inspection is required to assure that production drawings and specifications used correspond to the route sheet revision block information furnished by planning.

### 3.2

#### QUALITY SUPPORT TO DESIGN REVIEW

SCI quality assurance personnel participate and recommend changes in the program design reviews to ensure that designs permit and facilitate producibility, repeatability and inspectability and that related quality considerations are obtained.

Quality assurance maintains records during design review to establish history for inspection planning. Areas under consideration will be critical product/process characteristics and parameters, materials and parts.

Quality assurance approves, by signature, final design and all contractual changes.

Quality assurance participates in the establishment of reliable parts and materials and is an active member of parts and materials control board as outlined in the reliability section of the program plan,

### 3.3

#### CHANGE CONTROL

All changes to documents such as drawings, test procedures, procurement documents, engineering change orders (ECO), process specifications and production work orders are reviewed and approved by quality assurance personnel prior to implementation. Quality assurance verifies approval of the changes by customer prior to implementation on any affected article of the SMM Instruments hardware. All changes will be reviewed and approved by quality engineering, as specified in QCP 4.01 Drawing, Specification and Test Procedure Control.

The effectivity of the above change points will be defined by serialization and

part number change (when there is an effect upon "design definition"). All changes of hardware or materials is inspected to verify the compliance and configuration of the change.



Records of all activities relating to product quality are maintained by quality assurance. These include purchase orders, traceability data, part screening data, vendor performance, in-process inspection and test records, shop performance and evaluation, corrective actions, operator training and certification, material review and/or material review board actions, acceptance test data, monthly manufacturing shop performance evaluations and scrap cost. These records are available for customer on-site review upon request. Rejection notices include all pertinent data required to effect corrective action. Reference to reject notices is included on inspection records to indicate disposition. Records are retained for three years unless otherwise directed by the contract. Quality records are retained as specified in QCP 1.03, Quality Records.

Traceability of the product is maintained throughout the operation by utilizing inspection travelers, assembly work orders, shop travelers and other documents to identify equipment status of all phases of manufacture. All stamps are traceable to the individual. Traceability of all items will be performed as specified in QCP 6.02, Traceability.

## 5.0

## PROCUREMENT CONTROLS

### 5.1

### GENERAL

SCI is responsible for the adequacy and quality of all SCI purchased or supplied articles, materials and services.

### 5.2

### SELECTION OF CONTRACTOR PROCUREMENT SOURCES

All procured supplies, processes or services are obtained from sources which are acceptable to SCI quality assurance and/or MSFC. A list of approved suppliers is published and maintained by quality assurance based on a monthly review of supplier performance records.

Quality assurance surveys of subcontractor's facilities are performed when the nature of the procurement demands a quality assurance system evaluation. All suppliers of material for use in the SMM Instruments hardware will be required to maintain an inspection system in compliance with contract requirements. These requirements will be employed at the supplier's facilities when articles cannot adequately or economically be inspected upon receipt. Major subcontractors will be required to submit quality assurance plans to SCI for approval in accordance with NHB5300.4(1C) and GSFC Document #SMM300-01. Quality control requirements are imposed thru the procedure definition of QCP 5.02, Control of Procurement Sources.

### 5.3

### PROCUREMENT DOCUMENT CONTROL

Each Purchase Order issued by SCI for application on this Contract will be reviewed by a Quality Assurance delegate prior to issuance. Quality Control Procedure 5.01 "Purchase Order Review" will be used and defines the review Procedure.

Procurement documentation quality review begins with a review of a preliminary Request for Purchase (RP). The RP is developed to assure accuracy and completeness of the formal Purchase Order. The RP is reviewed for technical requirements such as specification type, grade and revision level, complete nomenclature and part number.

Quality Requirements (Terms and Conditions) are developed by Quality Engineering during a review of the Contract Ref. Quality Control Procedure 3.01 "Contract Review". A checklist is prepared and distributed to the Quality Control delegate. Standard Q & R terms are applied to the RP as per SCI Form No. 840-116, "Quality & Reliability Terms for Purchase Orders". After the RP is processed, the formal Purchase Order (PO) is reviewed prior to release to assure all requirements of the RP were transferred, Contract number is correct and the selected supplier is approved.

Quality Terms and Conditions as stated on the P.O. contains provisions for:

- a. Configuration Control (changes)
- b. Purchased Raw Materials and Chemical and/or physical test results.
- c. Raw Materials used in purchased articles - also availability of test data or detailed analysis on Materials to Contractual Specifications or requirements.
- d. Age control and life limited products.
- e. Identification and data retrieval.
- f. Inspection and test characteristics and date retrieval.
- g. Inspection and Test records for availability or retention of - and as specified.

Special Instructions such as preservation, packaging, packing and shipping or supplementary testing will be included as a note in the body of the PO and will define the specifics required.

# SCI SYSTEMS, INC.

8620 South Memorial Parkway - Huntsville, Alabama - 35802

Telephone 205-881-1611

FIGURE 2 (Sheet 1 of 2)

## QUALITY & RELIABILITY TERMS FOR PURCHASE ORDERS

The following terms apply as indicated on the face of the Purchase Order. If you cannot meet any applicable term, notify the responsible SCI Buyer immediately.

### SOURCE INSPECTION

1. The Government reserves the right to inspect any or all of the materials included in this order at the supplier's plant.
2. SCI reserves the right to inspect any or all of the materials included in this order at the supplier's plant.
3. Government Source Inspection Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished. The Government Representative shall also be notified forty-eight (48) hours in advance of the time articles or material are ready for inspection or test. Supplier shall furnish Government Representative with with blueprint and specifications necessary for inspection.

NOTE: Government Source Inspection does not relieve the supplier of the responsibility for the product meeting all applicable specifications.

4. SCI Source Inspection All work performed under this order is subject to buyer's inspection or test at the vendor's plant. The buyer's representative may elect to perform inspection or test either on a random basis or to the extent of one hundred (100) per cent inspection. In any event, when the item(s) is ready for final inspection or when practical, seventy-two (72) hours in advance, notify the SCI Quality Control Department that source inspection is needed.
5. Government Inspection at Destination All materials and services provided on this order are subject to Government inspection at destination.

### CERTIFICATIONS

Three (3) copies of each certification document specified below shall accompany each shipment. Certifications shall be signed by a responsible member of the vendor's firm. Each certification shall identify the SCI Purchase Order and shall identify the part, serial number, lot or items covered by the certification. Material received without certification will be rejected and returned at vendor's expense.

6. General Compliance: By the acceptance of this purchase order, seller agrees that materials and/or finished parts shall be controlled and tested in accordance with and will meet specified purchase order requirements and specifications and the applicable records are on file subject to examination.
7. Perishable Raw Materials: The vendor shall include the material type, condition, lot or batch number, specification, manufacturer, date of manufacture, and shelf life expiration date on all perishable raw material certifications.
8. Specific Compliance: The vendor shall certify that all materials, processes, and finished items supplied under this order were inspected, tested, and found to comply with the requirements of this order. Inspection and test data shall be maintained and are subject to SCI's examination.
9. Material Test Reports: The vendor shall submit a chemical and physical test report with actual test data for the materials shipped under this order.
10. Dimensional Data: Recorded findings on all critical dimensions shall be submitted. Critical dimensions are defined as those dimensions which would have an adverse effect on the next higher assembly if tolerance are not maintained.
11. Functional Test Reports: When functional tests are specified by this order or by the design documentation, the actual test results shall be submitted. A copy of the test procedure shall be submitted with the first report on each type of item(s) purchased under this order, unless specified otherwise in design documentation.
12. Functional Test Procedure: The functional test procedure to be followed in functionally testing the item purchased to determine its compliance with functional requirements shall be submitted for approval not later than thirty (30) days before use at the vendor's plant. All changes shall be submitted before use on products delivered under this order.
13. Inspection and Test Plan: An inspection and test plan for control of articles furnished in accordance with this purchase order shall be prepared and specifically written to outline the product flow from receipt of materials through fabrication, assembly, and test operations. The plan will define the inspection points throughout the manufacturing sequence and describe what, where, and when inspection will be implemented to control the product including procedures to be used. Two (2) copies of the plan shall be forwarded to the buyer within fifteen (15) days after date of order.
14. Quality Control Plan: The vendor's Quality Control Manual or equivalent shall be submitted for review. The review will be for indication of adequate planning to assure general product quality and for conformance to applicable program specifications.
15. Reliability Plan: The vendor's Reliability Manual or equivalent shall be submitted for review. The review will be for indication of adequate planning to assure general product reliability and for conformance to applicable program specifications.

### PROGRAMS

16. Inspection Program (Department of Defense): The vendor's inspection program shall be in accordance with Specification MIL I 45208A, "Inspection System Requirements".
17. Inspection Program (NASA): The vendor's inspection program shall be in accordance with NASA Quality Publication NHB 5300.4 (IC) "Inspection System Provisions for Suppliers of Space Materials, Parts, Components, and Services".
18. Quality Control Program (Department of Defense): The vendor's quality program shall be in accordance with Specification MIL Q 9858A, "Quality Program Requirements".
19. Quality Assurance Program (NASA): The vendor's quality program shall be in accordance with NASA Reliability and Quality Assurance Publication, NHB 5300.4 (IB), "Quality Program Provisions for Space System Contractors".

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## FIGURE 2 (Sheet 2 of 2)

### 20. Dealer and distributor Quality Program Requirements:

1. Quality Program provisions stated herein shall govern operating systems or dealers and distributors to assure that materials and parts meet SCI Design, Quality and related contract requirements.
2. The supplier shall ensure that material was manufactured, inspected and tested in accordance with SCI requirements. Supplier procurement documents shall require that his sources agree to conform to the product assurance quality system specified by SCI purchase order.
3. MIL/FED STD material such as AN, JAN and NAS shall be obtained from Federal Qualified Products List (QPL) sources.
4. Supplier Stock Control shall assure that material quality is verified and maintained. Items shall be from current production and traceable to the date received. Supplier and product identity markings shall be as required by drawings and specifications. Unless identities are specified by SCI, supplier part numbers shall be used. Special tests or screening necessary to substantiate conformance to SCI requirements shall be recorded. Nonconforming material shall be segregated and withheld from delivery to SCI. Items rejected by other customers shall not be submitted to SCI unless negotiated in advance. Limited life material shall be marked, stored and controlled as required by drawings and specifications.
5. Corrective Action by the manufacturer shall be available through the supplier upon request and shall include a failure analysis report and all efforts necessary to remedy the cause and prevent recurrence.
6. Documentation such as inspection records and test reports, as well as that required by drawings, specifications and procurement documents, shall be furnished upon request.
7. Product Protection shall comply with handling, preservation, packaging and shipping requirements, and practices shall ensure that original quality is maintained. Commercial practices shall not be considered to relieve the supplier of the responsibility to assure delivery of material in acceptable condition.

### CONTROLS

21. Workmanship: All items on this order shall be fabricated and finished in a thorough, high quality, workmanship like manner.
22. Part Identification: All items supplied under this order shall be identified with complete nomenclature and part numbers in accordance with MIL-STD-130 or as specified.
23. Casting Identification: All castings shall be identified by a permanent part number and configuration or by a method that will give complete traceability of chemical, physical analysis and heat treat. The identification shall remain legible after machining or surface finish.
- 23a. Castings: Physical and chemical test data of raw materials used in the fabrication of articles furnished on this purchase order, denoting the applicable heat number, batch number or date of manufacturer of materials, are to be supplied with each shipment.
24. Process Control: The vendor shall maintain control and approval of all manufacturing and inspection processes used in the performance of this order. The vendor shall maintain objective evidence of process qualification in accordance with applicable specifications.
25. Configuration Control: The vendor agrees not to make any changes in his part at any time in the future which would effect physical or functional interchangeability, reliability, or repair and maintenance operations unless his part number identification is changed.
26. Calibration Control: The vendor shall control the calibration of all measuring and testing devices against certified standards traceable to the National Bureau of Standards. The calibration program shall conform to Specification MIL-C-45662, "Calibration System Requirements".
27. Material Review: The vendor is authorized to conduct formal material review on conditions of minor nonconformances in item(s) on this order provided the contractor has and uses a Material Review System approved by the cognizant Government Representative. Minor nonconformities are defined as those conditions which do not adversely affect function, reliability, safety, interchangeability, or basic objectives of the contract. All other nonconformances shall be classified as major and shall require SCI's approval. SCI reserves the right of disapproval of all Material Review Board dispositions. Copies of all MRB actions shall be shipped to SCI with the concerned item.
28. Inspection Data: One (1) copy of the item drawing or applicable catalog page shall accompany parts for receiving identification and inspection.
29. Packaging: The material shall be packaged in containers bearing the seller's part number and, if any, applicable "AN", "MS", or other standard part number. Materials are to be shipped in containers in keeping with good commercial practices to preclude any damage being incurred during shipping and storage at buyer's plant. Each package shall be identified with the SCI Purchase Order Number on the outside.
30. Traceability: All items furnished on this order shall have documentation on file for at least three (3) years after delivery to permit traceability from the delivered item back through its manufacture and inspection to the procurement records on its constituent parts and materials. These records shall be sufficient to prove conformance to all applicable specifications and drawings and shall provide means for identifying all like items. Certifications of Compliance must state Lot number(s) and/or Date code(s) or other methods of traceability previously approved by SCI Quality & Reliability.
31. Raw Material Identification: All raw material supplied on this order must be identified with the applicable specification, type, condition & manufacturer of materials.
- 31a. Physical and chemical test data of raw material used in the fabrication of articles on this purchase order, denoting the manufacturer of materials and your order number are to be supplied with each shipment.
- 31b. Physical and chemical test data of raw materials used in the fabrication of articles on this purchase order, denoting the manufacturer of materials and your order number shall be retained on file by the supplier for a period of three (3) years.
32. X-Ray Inspection: All material shall be subjected to X-Ray inspection. The X-Ray number shall be marked on the material when so required by specifications. X-Ray photographs identifying part and position shall be submitted to SCI Systems, Inc.
33. Lot Control: Lot identification numbers shall be supplied with material. Inspection records/data traceable to the lot identification shall be available on request.

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#### 5.4

#### CONTRACTOR QUALITY ASSURANCE PERSONNEL AT SOURCE

Quality assurance personnel, with approval of the Contracting Officers Representative (COR) will be assigned at subcontractor or supplier facilities when deemed necessary by the Quality Assurance Manager or when one or more of the following conditions exist:

- (a) In-process or end-item controls have such an effect on the quality of the articles that the quality cannot be determined solely by inspection or tests of the procured articles at the contractor's plant.
- (b) Verification tests are destructive in nature and the quality cannot be verified solely by inspections or tests at the contractor's plant.
- (c) Environmental or test equipment required cannot be feasibly and economically reproduced or made available at the contractor's plant.
- (d) Past performance of quality history of the subcontractor or supplier is marginal.
- (e) Qualification testing is to be performed by the subcontractor or supplier.
- (f) Articles or materials are designated for direct shipment from source to the procuring installation or using site.

Personnel assigned at subcontractor or supplier facilities conduct appropriate quality assurance activities to ensure that the articles or services supplied

comply with applicable requirements.

SCI will provide a list of duties, responsibilities and authorities of the assigned quality assurance personnel to the delegated DCAS representative at SCI. If both Government source inspection personnel and SCI personnel are utilized at a supplier's facility, the listing will also be made available to the Government quality representative at the supplier's facility.

#### 5.5 GOVERNMENT SOURCE INSPECTION

The delegated DCAS representative at SCI will be consulted prior to placement of procurements to determine the need for Government Source Inspection (GSI). All materials are re-inspected upon receipt, regardless of GSI acceptance.

When GSI is required, PO's will include the following statement:

"All work on this order is subject to inspection and test by the Government at any time and place. The DCAS quality representative who has been delegated NASA quality assurance functions on this procurement shall be notified immediately upon receipt of this order. The DCAS representative shall also be notified forty-eight (48) hours in advance of the time articles or materials are ready for inspection or test".

All other orders shall include the following statement:

"The Government has the right to inspect any or all of the work included in this order at the supplier's plant."

## 5.6

### RECEIVING INSPECTION SYSTEM

All production supplies and articles are inspected upon receipt to determine whether they meet specifications and PO requirements. Each article is inspected in accordance with instructions furnished to receiving inspection by an inspection characteristic card.

Copies of PO's, drawings, specifications, or other appropriate documents are made available to the inspection operator to receive and inspect the articles.

Evidence of acceptance is denoted by an inspection stamp on accompanying documents, tags, labels or containers appropriate to the type of articles and the quantity involved.

Nonconforming articles are identified and segregated from conforming items, and controlled per QCI 8.009.

Physical and chemical test reports and/or certifications are verified for conformance and accuracy prior to acceptance by inspection. Laboratory tests shall be required only on materials not properly identified by supplier, in-house materials where identification is lost for critical materials or where there is some reason to question Vendors Certification. Each piece of material will be identified with a permanent mark upon receipt and upon division. When required by



the contract or purchase order, test specimens of raw materials are provided with fabricated articles for verification tests. Receiving inspection is conducted to this procedure as delineated in QCP 6.5, Receiving Inspection.

Age-sensitive material is controlled by tag identification of the material upon receipt. This tag identifies material to the PO, date of manufacture and date of expiration. Age requirements are based on the manufacturer's recommended shelf life or SCI procurement specifications. Age-sensitive material is identified and controlled by QCP 6.06, Inspection of Potting Compounds, Adhesives and Other Perishables.

Components are inspected in accordance with detailed receiving inspection procedures prepared for each classification of incoming material. The materials are measured and tested to determine conformance to all contract requirements as outlined in SCI screening instructions. Materials are physically inspected for general workmanship acceptability. Certifications and stamped receiving reports are retained in the Receiving Inspection files. Nonconforming material is routed to a withhold area to be returned to the vendor. A record of the result of the receiving inspection is retained on each vendor's history record. This record includes purchase order number, number of pieces rejected and disposition of rejected parts. Procured components will be lot-sample inspected in accordance with MIL-STD-105, implemented by QCP 6.04, Single Sampling Procedure and Tables for Inspection by Parameter. The use of statistical sampling will be limited to receiving inspection only.

Acceptable articles are identified by acceptance stamping of the container, package or identification label. The part number, source of procurement, purchase order

number and certification or test report identity is retained with the stored articles. Accepted material to be used in the fabrication of SMM Instruments hardware will be stored within a controlled area.

Quality assurance audits are conducted at random intervals in each area. An audit checklist is used to conduct the inspection to assure age control, part identification, storage environment and good material handling practice. Audits are conducted in accordance with QCP 6.08, Facilities and Stores Audit.

#### 5.7 SUPPLIER RATING SYSTEM

SCI's supplier rating system provides the information necessary to assure materials, assemblies or services purchased are adequate to meet the requirements of SCI and its customers and is covered in QCP 5.02, Control of Procurement Sources.

The system is comprised of the following control elements:

- (1) Control of procurement sources
- (2) Vendor rating analysis
- (3) Corrective action and follow-up

All procurements by SCI are from approved suppliers listed in the approved suppliers' list (ASL) published by the procurement control section of quality engineering.

An analysis of supplier performance is made from receiving inspection reports forwarded to the data processing center. The resultant electronic data processing (EDP) report listing receivables, rejections and rejection percentage is reviewed

and processed by quality engineering for supplier trends, problem areas and resultant corrective action. Supplier performance data will be available as a section of the quality activity.

Written corrective action is forwarded to the supplier based on the above analysis. Continued poor performance or non-response to corrective action requests results in the supplier being disapproved as a source. No procurement will be made from a disapproved supplier without prior approval of the SCI Quality Assurance Manager and the delegated DCAS Quality Assurance Representative.

#### 5.8 POST-AWARD SURVEYS OF SUPPLIER OPERATIONS

SCI will schedule and conduct post-award surveys of suppliers based upon:

- (a) Criticality of items being procured.
- (b) Known problems or difficulties.
- (c) Supplier quality history.
- (d) Supplier fabrication and testing capability.
- (e) Remaining period of supplier performance.

Each survey will include examination of operations and documentation to determine compliance with established requirements as well as an examination of articles and materials to verify the effectiveness of the supplier's quality system.

A summary of survey results will be documented, including problem areas discovered, with recommendations for timely correction and prevention of deficiencies as well as recommendations for follow-up action.

#### 5.9 COORDINATION OF CONTRACTOR-SUPPLIER INSPECTIONS AND TESTS

SCI will coordinate with selected suppliers to ensure compatibility of supplier inspections and tests with SCI inspections and tests of the procured article or material. SCI will also provide technical assistance and training for suppliers as necessary.

#### 5.10 NONCONFORMANCE INFORMATION FEEDBACK

SCI will rapidly feed back to suppliers, information concerning supplier-responsible nonconformances which are detected during SCI inspection, test, fabrication or assembly operations, or during use. SCI will ensure that the supplier takes prompt remedial and preventive action to preclude recurrence of nonconformance.

Periodic reviews of problem summaries, failure and trend summaries, and program status will be scheduled with each major subcontractor. MSFC will be notified of these schedules.

## 6.0

### FABRICATION CONTROLS

#### 6.1

##### FABRICATION OPERATIONS

All fabrication and assembly of the SMM Instruments hardware accomplished at SCI will be performed utilizing a family of manufacturing route sheets and shop work requests. These records will be planned by manufacturing engineers and reviewed by quality assurance to assure proper placement of inspection points and configuration. These documents will reference applicable drawings, military, or SCI specifications and/or standards to be used in the fabrication and assembly of the hardware. Existing manufacturing standard procedures, process specifications, quality control procedures and quality control instructions will be utilized throughout this procurement.

#### 6.2

##### WORKMANSHIP STANDARDS

SCI process specifications shall be used as the workmanship standards to meet the requirements of the contract during fabrication. All changes or additions will require customer review before implementation.

SCI will plan and conduct tests for all segments of manufacturing which will ensure that contract, drawing and specification requirements are met. The program and its application to all phases of the contract will provide maximum assurance that the quality inherent in the design is maintained. Quality control procedures or specifications and test instructions will be prepared for each required inspection or quality assurance function where an existing one might be inadequate for a particular inspection or test. These documents will be controlled per existing quality control procedures. They will be supplementary to details shown on drawings or other production and quality assurance documents. In addition, an inspection checklist for detailed inspection operations will be prepared in the required sequence determined by quality control.

Quality assurance will utilize internal specifications in preparing inspection instructions. Every controlled quality parameter such as dimensions, finish workmanship, performance, etc., will be inspected.

Electrical subassembly-level testing and acceptance testing will be performed at SCI to the SCI-generated test procedures to assure the requirements specified by the drawing and/or contract are met.

SCI will provide for the integration of the delegated DCAS inspector's inspection of hardware and documentation as required and for the monitoring of tests. These inspections will be predetermined points within the manufacturing flow which will include fabrication, processing and end-item operations.

In addition, SCI will prepare and maintain a product inspection and test flow chart, Appendix A, indicating the location, inspection stations, control points, and test operations for the entire phase of fabrication, processing, assembly test and end-item operation.

The flow chart will indicate the applicable drawings, process and fabrication specifications/procedures, test specifications, inspection instructions, workmanship standards, etc., that will be used during the various operations. The flow chart and subsequent changes will be furnished to the MSFC Quality Representative (EG22) and to the delegated DCAS inspector.

Daily inspection logs will be maintained by quality control inspectors in each manufacturing area. These log sheets will list each piece inspected and all re-jects noted, if any, by a coded number. The daily inspection log sheets will be forwarded to data processing weekly. Data processing will return the data once a week, as well as a monthly summary to the quality engineering office. This readout will include the number of joints/units inspected, the number accepted and the shop efficiency for each manufacturing area. Quality engineering will enter the monthly readout data on control charts. Plus or minus 3 sigma control limits will be established in the form of percent defectives, using standard statistical methods. Charts will be updated and distributed monthly to manufacturing supervision. The process control charts will be monitored by quality engineering for the detection of trends, indications of problems and general process control. Investigations and corrective actions will be initiated immediately. Shop performance evaluations shall be conducted per QCP 9.01, Shop Performance Evaluation.

Weekly readout data will be reviewed by quality engineering and manufacturing supervision for significant indications of process changes or poor shop performance. Corrective action will be taken as indicated by the available data.

#### 7.1 INSPECTION/TEST RECORDS AND DATA

SCI will maintain records and data of all inspections and tests performed on the SMM Instruments. These records will be made available to MSFC throughout the performance life of the contract and for a period of three years after the date of the contract close.

#### 7.2 QUALITY ASSURANCE ACTION

Prior to testing, SCI quality assurance personnel will:

- (a) Verify that applicable inspection and test documents are available.
- (b) Ensure that requirements for selection and control of articles have been implemented and that test constraints have been resolved.
- (c) Verify that articles are identified.
- (d) Verify configuration of articles.
- (e) Verify that configuration of test equipment is consistent with articles under test.
- (f) Verify that test equipment is calibrated and such calibration will be effective and sustained during test period.
- (g) Verify that the calibration tags have current dates -Ref. QCP 7.06.

During all testing, SCI quality assurance personnel will:

- (a) Ensure that testing is accomplished in accordance with test specifications and procedures.
- (b) Ensure accurate and complete recording of data and test results.



- (c) Document nonconformances and participate in their dispositions.

Subsequent to testing, SCI quality assurance personnel will:

- (a) Ensure proper disposition of articles.
- (b) Report any additional nonconformances and participate in their dispositions.
- (c) Ensure that remedial and preventive action has been accomplished relative to nonconformances.
- (d) Verify that test results and reports are accurate, complete and traceable to the tested articles.
- (e) Verify that post-test or final mechanical inspection has been performed.
- (f) Will verify that the equipment log book is maintained and up-to-date. Items, such as rubber molds or grommets, etc. which have a service life date should be listed and the expiration date shown.

## 8.0

### NONCONFORMING MATERIAL

SCI has in effect a positive control system for nonconforming material, documented in QCI 8.009. All nonconformances are immediately identified upon detection. The nonconformance is detailed on reject disposition tags (RDTs) and the material is placed in secured withholding areas pending disposition. The RDT's are identified and controlled by a pre-stamped five-digit control number. They will be filed by SCI work order and part number. The RDT is comprised of the following information:

- (a) A unique and traceable number
- (b) The nomenclature and identification of the nonconforming article or material.
- (c) A description of the nonconformance and the required characteristic or design criteria.
- (d) Cause or reason for the nonconformance
- (e) Remedial actions taken or recommended
- (f) Disposition of the nonconforming article or material
- (g) Initiator of the document
- (h) Signatures of authorized personnel

SCI quality assurance personnel will conduct appropriate analysis and examination of the nonconforming articles, materials or conditions to determine the cause or reason for the nonconformance. Review and disposition of nonconforming articles will be performed to the requirements of QCP 8.01, Material Review Board Actions and QCI 8.009, Nonconforming Material Control.

Any requests for material delivery, repair or use-as-is, when the nonconformance

adversely affects safety, reliability, durability, performance, interchangeability, weight or the basic objectives of the contract, will be submitted to MSFC within 24 hours via TWX. Formal MRB request will be submitted ASAP after analysis and evaluation for approval. Material, having requests submitted for repair or use-as-is, will be withheld from further processing until Contracting Officer approval is obtained.

#### 8.1 INITIAL REVIEW DISPOSITIONS

Nonconforming articles or materials reviewed initially by SCI quality assurance personnel and determined to be a minor nonconformance will be subjected to one of the following dispositions:

- (a) Return for Rework or Completion of Operations. If the nonconformance is in the category of "return for completion of operations" or "return for rework to drawings, specifications or procedures", the article or material shall be returned for rework or completion using established technical documents and operations. During such rework, the article or material will be resubmitted to normal inspection and/or test operations.
- (b) Return to Vendor. When an article or material is found to be nonconforming on receipt, it may be returned to the supplier. SCI will provide the vendor with nonconformance information, and assist as necessary, to permit remedial and preventive action. The local Government Representative shall be notified if GSI is involved.
- (c) Interim Disposition. Route article for troubleshooting, fault

isolation or failure analysis. Final disposition to be made after completion of the interim disposition.

- (d) Submit to Material Review Board. When the dispositions as described above are not appropriate, the article or material will be submitted to the Material Review Board (MRB) for final disposition.
- (e) Scrap. Articles obviously unfit for use or found uneconomical to repair shall be scrapped. The Contracting Officers Representative (COR) and the delegated DCAS Representative shall be notified if GSI or Government Furnished Property (GFP) is involved.

## 8.2 MATERIAL REVIEW BOARD

The MRB will be comprised of one SCI representative whose primary responsibility is engineering, one SCI representative whose primary responsibility is quality, and the delegated DCAS Representative. SCI members for the MRB are selected on the basis of technical competence and have sufficient authority to make appropriate dispositions of the article or material involved.

The MRB will have the following responsibilities:

- (a) Determine disposition of submitted articles or materials designated as nonconforming.
- (b) Ensure that implementation of effective remedial and preventive actions are documented on the nonconformance document prior to disposition.
- (c) Provide SCI recommendations to the DCAS Representative concerning nonconformance dispositions requiring his approval and

verify implementation after approval is obtained.

- (d) Ensure that accurate records of MRB actions are maintained.

MRB dispositions, other than scrap, require the unanimous agreement of the board members. In determining dispositions, the board will consider the effect of the nonconformance upon the intended use, review records of earlier review actions affecting the same article or material and consider the recommendations of personnel acting in an advisory capacity. After MRB has determined that an initial review disposition to submit a nonconforming article or material to MRB is appropriate, the board will specify on the nonconformance document one of the following dispositions:

- (a) Repair. When, in the opinion of the board, an acceptable repair is possible, repair action may be authorized. Procedures will include appropriate inspections and tests to verify the acceptability of the repair.
- (b) Scrap. If the article or material is unfit for use, it will be disposed of in accordance with approved SCI procedures for identifying, controlling and disposing of scrap.
- (c) Use As Is. Nonconformances which do not adversely affect safety, reliability, durability, performance, interchangeability, weight, or the basic objectives of the contract may be accepted for use as is. The rationale for making a use-as-is disposition will be documented on the nonconformance report.

### 8.3

#### CORRECTIVE ACTION

All nonconformances will be evaluated by quality assurance, using QCP 8.02, Corrective Action and utilizing the investigative and corrective action logic charts provided.

Receiving records will be utilized for analysis of quality characteristics in order to initiate requests for corrective action with suppliers or subcontractors, when appropriate. When failure analysis indicates a high probability that certain discrepancies or deficiencies will be repetitive, immediate corrective action is initiated. Follow-up action is also initiated to insure that the problem is eliminated or minimized. Personal or written communication is initiated with the supplier by personnel delegated this responsibility by the Quality Assurance Manager per QCP 8.02, Corrective Action Control and Follow Up.

In-process corrective actions are initiated on a corrective action request (CAR): When the defects are noted to be repetitive; when the defect may cause delays in scheduling; if the problem involves difficult or critical manufacturing techniques; or in special circumstances, when the CAR is determined to be appropriate upon analysis by the Quality Assurance Manager or his delegate.

Customer CAR's are forwarded by the recipient, to quality assurance for immediate action. Following the evaluation, retest, or analysis of returned articles, a complete report is issued to the customer within his prescribed time limitations. This report answers, in detail, all of the information requested by the customer. Interim replies will be initiated when the time required for a full analysis is excessive.

SCI's calibration facility and system shall be maintained to comply with the requirements of MIL-C-45662A as implemented by SCI QCP 7.06, Measurement and Test Equipment Calibration.

Every tool, gauge or instrument utilized for inspection acceptance is calibrated in accordance with an established schedule. The schedule is provided to assure that each classification of measuring device is checked at an appropriate interval to assure continuing accuracy. All measuring devices to be utilized for the SMM Instrument hardware fabrication will be calibrated against standards traceable to the National Bureau of Standards (NBS), and, where consistent with the state-of-the-art, at a tolerance no greater than 10% of the equipment being calibrated. Any equipment that does not meet the requirements of the state-of-the-art or a required accuracy is controlled so that repeatability and reproducibility within specified tolerances are known at all times. Certain articles for which SCI does not have calibration capability are sent to capable independent laboratories whose standards are traceable to the NBS.

Mechanical and electronic measuring devices are calibrated per existing quality control procedures and instructions by quality assurance laboratory personnel.

A calibration record system employing EDP identifies each article by manufacturer's name, type, SCI serial number, calibration interval required, date due for next calibration, overdue equipment, location of the device and a historical record of rework, re-adjustment or repair. These records are used to modify calibration intervals when deemed necessary.

10.0

STAMP CONTROLS

SCI has established and shall maintain a documented stamp control system.

Stamp design, usage and distribution shall be controlled by QCP 6.07, Control of Inspection Stamps. Stamp configuration and usage is described in Figure 2.

The inspection status of all articles being processed through the fabrication, production, and test areas is clearly identified through the use of SCI inspection stamps issued to qualified individuals. All phases of manufacturing and test requiring inspection will receive the appropriate quality assurance stamp in accordance with QCP 6.09, In Process Inspection and Test and QCI 6.008, Maintaining Inspection Status. Equipment that does not meet the acceptance standard will be identified with detailed descriptions of the discrepancies on the inspection traveler.

All in-process, preliminary, functional and qualification tests will, upon acceptance, receive the acceptance test stamp. Articles failing to meet the required tests will be identified by a detailed description of the failure on the route sheet. All stamps will be traceable to the individual.



# General Acceptance



This stamp is used by QA personnel for acceptance of inspection operations.

# QC Rejection



This stamp is used by QA personnel to signify rejection operations.

# QC Test Acceptance



This stamp is used by QA test personnel for verification of final acceptance test of any assembly or subassemblies of which QA monitors the test.

# Calibration Stamp



This stamp is used by QA personnel in the Calibration Lab to denote verification of equipment calibration.

# In-Process Test



This stamp is used by test personnel for verification of in-process or acceptance tests.

# Test Rejection



This stamp is used by Test personnel to signify rejection operations.

# Withhold for Material Review Board



This stamp is issued to QA personnel as deemed necessary by the QA Manager. The material and/or travelers will be stamped with a "D" stamp to denote withheld for MRB action.

# Material Review Board Acceptance



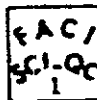
This stamp is issued to QA personnel as deemed necessary by the QA Manager. This stamp will cancel the previously mentioned "D" stamp and accept the material for use.

# MRB Scrap



This stamp is issued to QA personnel as deemed necessary by the QA Manager. This stamp is to denote the action taken by the M. R. Board in the case of scrap-ping material. The stamp will be affixed to the material to denote scrap.

# First Article Configuration Inspection



This stamp is used by QC inspectors when a F.A.C.I. is performed.



This stamp is used on production orders by stores personnel to indicate that the type of material issued is in accordance with the work order requirements. It is also used to validate identification markings which have been transferred from Receiving Inspection Records to Material or from one piece of material to another.

11.0            HANDLING, STORAGE, PRESERVATION, MARKING, LABELING, PACKAGING,  
PACKING AND SHIPPING

11.1            IDENTIFICATION, HANDLING AND STORAGE OF MATERIAL

Materials will be inspected in accordance with detailed receiving inspection procedures prepared for each classification of incoming material. Materials purchased are measured and tested per existing quality control procedures and instructions to determine conformance to all drawing requirements. Materials are physically inspected for general workmanship acceptability. Certifications and stamped receiving reports are retained in the receiving inspection files. Nonconforming material is routed to a withhold area to be handled in accordance with section 8 of this plan. A record of the results of the receiving inspection is retained in each vendor's history record. This record includes purchase order number, number of pieces inspected, number of pieces rejected, and disposition of rejected parts.

Acceptable articles are identified by acceptance stamping of the container, package, or identification label. The part number, source of procurement, purchase order number and certification or test report identity are retained with the stored articles.

In-process handling of flight hardware will be in accordance with QCP6.03, In-Plant Handling, Packaging and Shipping Inspection. Also the SMM hardware will be fabricated in an environmental controlled atmosphere. The area will be maintained at seventy-five plus or minus ten degrees Fahrenheit and 60 percent maximum relative humidity.

Quality assurance audits of the storage area will be made at random intervals. An audit checklist will be utilized to assure the integrity of the inspection status and to assure that no deterioration or damage to stored articles has occurred.

#### 11.2            PRESERVATION, PACKAGING, PACKING AND SHIPPING

The shipping inspector is required to follow a prepared checklist to assure that all acceptance requirements are complete, that packaging requirements have been observed and that the articles and shipping containers are identified in accordance with contract requirements. Inspection acceptance of the above requirements will be depicted by the application of the inspection stamp on the shipping documents.

Packaging shall be accomplished in accordance with QCP 6.03, Packaging and Shipping Inspection.

## 12.0 GOVERNMENT PROPERTY CONTROL

SCI receiving inspection shall inspect all GFP immediately upon receipt to determine that no damage has occurred in transit and that the shipment is complete and of the proper type. All GFP is then identified and storage and handling procedures are imposed to preclude improper use or improper disposal and to guard against deterioration in storage.

Functional testing is performed by qualified test technicians either prior to or after installation or both, as required by contract and applicable specifications to determine satisfactory operation.

Periodic inspection is performed on all GFP during storage to detect any signs of deterioration; to assure compliance with reinspection requirements and limitations on time in storage; any damage, malfunction, or deterioration of GFP prior to, during, or after installation is reported to the delegated DCAS Representative.

SCI shall report all unsuitable GFP to the delegated DCAS Representative.

If unsuitability is discovered during or after installation, SCI will determine the probable cause and necessity to avoid use of the material. Results of such investigation shall be recorded and be available to the delegated DCAS Representative.

## 12.1 BAILED PROPERTY

SCI shall provide adequate storage, maintenance and periodic inspection of bailed Government property as required by the terms of the bailment agreement. Records of bailed property shall be maintained and made available for review by the delegated DCAS Representative.

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DOCUMENTATION		QUALITY PROCEDURES		SCI PROCESS SPECIFICATIONS	
1. Customer Drawings/Specification				1. PS 1	Electrical Test Pattern - Components & Assembly - Testing of
2. SCI Drawings				2. PS 1003	RF Shielding with Silver Conductive Coating
3. SCI Purchase Order				3. Deleted	
4. Production Work Request				4. PS 2003	Potting & Embedding Using Epoxide Resin
5. Government Specifications				5. PS 2005	Epoxide Adhesives Usage of
6. Vendor Specifications				6. PS 2006	Potting of Core Transformers
7. Receiving Report				7. PS 2016	Ruggedizing FPWC Connector Units
8. Certificate of Compliance				8. PS 2029	Sealing AMP Box Series Connector
9. I-Ret Reports				9. PS 2030	Lamination of Insulating Material to Metal Substrate
10. Inspection Traveler				10. PS 2033	Sandwich Construction Bonding Aluminum
11. Quality Control Report				11. PS 5012	Soldered Electrical Connectors
12. Corrective Action Request				12. PS 5036	Torquing Microdot Marc 53 Connectors
13. Production Work Request				13. PS 5011	Electronic Modules, Welding and Assembly
14. Calibration Record Cards				14. PS 5019	Flexible Printed Wiring, Specification For
15. Calibration Data Stickers				15. PS 5022	Safety Wiring, Procedure For
16. Final Inspection Check List				16. PS 7002	Repair of Rigid Printed Wiring
17. Test Procedure				17. PS 7008	Repair of PC Pads, Edge Separation of
18. Test Report				18. PS 7009	Repair of Separated FPWC Conductors
19. Audit Check List				19. PS 7011	Repair of Flexible PW Insulation
20. SCI Shipping Document					
21. Vendor Rating Analysis					
22. Shipping Log					
23. Screening Traveler					
24. Log Book					
25. C & T Terms & Conditions, Form BEO-116					
Q.A. EVENTS				FLOW BLOCKS	
1. Visual Examination		1. 6.01 Control Review		1. Elec. Assy.	
2. Dimensional Checks		2. 6.02 Drawing, Proc. Location & Test Procedure Control		2. Mech. Assy.	
3. Functional Checks		3. 6.03 Purchase Order Review		3. Subassembly	
4. Corrective Action		4. 6.04 Control of Test/Measurement Sources		4. Final Assy. & Test Insp.	
5. Documentation Package		5. 6.05 Traceability		5. Final Insp. & Shipping	
6. Equipment Certification (Cal.)		6. 6.06 Packaging and Shipping Transaction			
7. Government Source Inspection		7. 6.07 Single Sampling Procedure and Tables for Inspection by Parameters			
8. Lab. Analysis (Chem/Metal)		8. 6.08 Receiving Inspection			
9. Q.F. Surveillance of Status		9. 6.09 Inspection of Incoming Components, Adhesive and Finishes			
10. Preservation and Packaging		10. 6.10 Control of Inspection Status			
11. Certification of Operators		11. 6.11 Facilities and Process Audit			
12. O.R. to Close		12. 6.12 In-Process Inspection and Test			
		13. 6.13 Manufacturing and Inspection Planning			
		14. 6.21 Environmental & Temperature Control			
		15. 6.23 Acceptance Testing & Processing Nonconforming Assemblies			
		16. 6.24 Certification of Equipment, Processes			
		17. 6.25 Control Requirements for IIS			
		18. 6.27 Mechanical Inspection			
		19. 7.04 Certification of Test Sets and Consoles			
		20. 7.05 Control & Maintenance of Environmentally Controlled Chambers			
		21. 7.06 Measurement & Test Equipment Calibration			
		22. 8.01 Material Material Review Board Actions			
		23. 8.02 Corrective Action Procedure			
		24. 9.01 Shop Performance Evaluation			
		25. 10.01 Failure Recurrence Control			

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OF POOR QUALITY

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OF POOR QUALITY

QC F.O. REVIEW
015625
0156

PURCHASING
0325

SUPPLIER
0123525

GFP/CFP
015624

RECEIVING INSP.
02356789101718
212325
012345810
0257891023

STORES
071023
015910
05911

ELEC. ASSY.
0124510
0911
02111314224
01113

MECH. ASSY.
0125910
0911
02131824
01215

INPROCESS INT
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025789
02531213

PLASTIC SHOT
024510
0911
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01457171819

INPROCESS INT
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0125791
0251011238

CALIBRATION
061415
01236
010141921

SUBASSEMBLY
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0254
0254

INPROCESS INT
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01257
025104

FINAL ASSY. & TEST INSP.
0125610161
013456712
025101415819

FINAL INSP. & SHIPPING
01258101116182022
015710
0125602223

MATERIAL REVIEW
025691012
012345
012102223

OTHER
RETURN TO
1 2 3 4 5

SCRAP
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SCI SYSTEMS, INC.
HUNTSVILLE ALA
HOUSTON TEXAS
DECATUR ALA
INSPECTION FLOW CHART

APPENDIX A